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IS 1615 (1996): Oil of Himalayan Cedarwood [PCD 18: Natural and Synthetic Fragrance Materials]

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हिमालय की देवदार लकड़ी का तेल — विशिष्टि

(दूसरा पुनरीक्षण)

Indian Standard

OIL OF HIMALAYAN CEDARWOOD — SPECIFICATION

(Second Revision)

ICS 71.100.60

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

July 1996

Price Group 2

Natural and Synthetic Perfumery Materials Sectional Committee, PCD 18

FOREWORD

This Indian Standard (Second Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Natural and Synthetic Perfumery Materials Sectional Committee had been approved by the Petroleum, Coal and Related Products Division Council.

This Indian Standard was originally published in 1960 and first revised in 1970. Earlier, oil of Himalayan cedarwood was produced by the steam distillation of waste saw dust, chips and wood shavings of the heartwood, and used to contain about 4 to 6 percent of essential oil. However, currently the oil of Himalayan cedarwood which is commercially available is steam distilled from roots and stumps only since the sawdust, chips and wood shavings are no longer available for extraction of oil. Because of this change in the source of oil extraction, there is a substantial change in physico-chemical properties of the oil which has necessitated this revision. Accordingly all the requirements of the oil have been modified. Gas Chromatographic method of analysis has been incorporated in this revision for the purpose of guidance only under Annex A.

The Indian deodar, *cedrus deodara* Loud., fam. Pinaceae, a perennial, large evergreen tree of pyramidal outline with spreading branches and dark green foliage, is indigenous to the Western Himalayan and is widely distributed in Northern India.

The oil of Himalayan cedarwood resembles the oil of Atlas cedarwood distilled from the wood of *Cedrus atlantica* Manetti. fam. Pinaceae. However *Juniperous virginiana,* yielding cedarwood oil recognized at the International level, does not grow in India.

The oil of Himalayan cedarwood is used with other essential oils in soaps, perfumes, as an excellent fixative and diluent, in sanitary supplies and polishes, and for masking odours in many other industrial products. Special grades are used for oil immersion lenses and as a tissue clearing agent in plant and animal histological work.

Clear steam distilled oil of Himalayan cedarwood is reddish or reddish yellow in colour and is known as crude oil. This oil when given alkali wash, decolourizes the oil from reddish or reddish yellow to pale yellow or golden yellow. At one point of time it was considered to incorporate the processed variety of the oil (alkali washed) also in the standard which is commonly known as rectified oil. However, on studying the physico-chemical properties of the two varieties, it was observed that except for the decolourization and slight lowering of relative density, the crude oil was not different from rectified oil. Therefore, only a reference is being made in the table of requirements that a light pale coloured oil of Himalayan cedarwood known as rectified oil is also available in the market.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

OIL OF HIMALAYAN CEDARWOOD — SPECIFICATION

(Second Revision)

1 SCOPE

1.1 This standard prescribes the requirements and methods of sampling and test for oil of Himalayan cedarwood.

1.2 This standard however does not cover special grades of the material which are used for oil-immersion lenses and as a tissue clearing agent for histological work.

2 NORMATIVE REFERENCES

The following Indian Standards contain provisions which, through reference in this text, constitute provisions of this standard. At the time of publication the edition indicated were valid. All standards are subject to revision, and parties to agreements based on the standard are encouraged to investigate the possibility of applying the most recent editions of the standard indicated below:

IS No.	*Title*
326	Methods of sampling and test for natural and synthetic perfumery materials
(Part 1) : 1984	Sampling (*second revision*)
(Part 2) : 1980	Preliminary examination of perfumery materials and samples (*second revision*)
(Part 3) : 1980	Determination of relative density (*second revision*)
(Part 4) : 1980	Determination of optical rotation (*second revision*)
(Part 5) : 1986	Determination of refractive index (*second revision*)
(Part 6) : 1986	Determination of solubility (*second revision*)
(Part 7) : 1980	Determination of acid value (*second revision*)
(Part 8) : 1980	Determination of ester value, content of esters and combined alcohols (*second revision*)
(Part 9) : 1980	Determination of ester value, after acetylation and free alcohols (*second revision*)
(Part 11) : 1986	Determination of carbonyl value and content of carbonyl compounds (*second revision*)
1070 : 1992	Water for general laboratory use (*third revision*)
2284 : 1988	Method for olfactory assessment of natural and synthetic perfumery materials (*first revision*)
6597 : 1988	Glossary of terms relating to natural and synthetic perfumery materials (*first revision*)

3 TERMINOLOGY

For the purpose of this standard, the definitions given in IS 6597 : 1988 shall apply.

4 REQUIREMENTS

4.1 Description

Oil of Himalayan cedarwood shall be obtained primarily by steam distillation of the roots and stumps of the deodar tree, *Cedrus deodara* Loud., fam. Pinaceae.

The oil shall be a clear liquid, free from sediments, suspended matter, separated water and adulterants.

The oil shall be examined for its clarity, separated water, and suspended matter as prescribed in IS 326 (Part 2) : 1980.

4.2 Solubility

The material shall be soluble in all proportions of ethyl alcohol (90 percent by volume) when tested as prescribed in IS 326 (Part 6) : 1986.

4.3 The material shall also comply with the requirements of Table 1.

Table 1 Requirement For Oil of Himalayan Cedarwood
(*Clause* 4.3)

Sl No.	Characteristics	Requirements	Method of Test, Ref to IS
(1)	(2)	(3)	(4)
i)	Colour and appearance reddish yellow	Pale yellow to deep reddish yellow	326 (Part 2) : 1980
ii)	Odour	Woody, balsamic	2284 : 1988
iii)	Relative density at 27/27°C	0.9280 — 0.9360	326 (Part 3) : 1980
iv)	Refractive index at 27°C	1.505 0 — 1.513 2	326 (Part 5) : 1986
v)	Optical rotation	+55° to +65°	326 (Part 4) : 1980
vi)	Acid value, *Max*	1	326 (Part 7) : 1980
vii)	Esters value, before acetylation, *Max*	15	326 (Part 8) : 1980
viii)	Ester value after acetylation, *Max*	30	326 (Part 9) : 1980
ix)	Carbonyl value (using hydroxylamine method, 3 g sample, 1/2 h reaction time)	35 - 90	326 (Part 11) : 1986

NOTE — Processed (alkali washed) oil of Himalayan cedarwood is golden yellow to pale yellow in colour.

5 PACKING AND MARKING

5.1 Packing

The material shall be supplied in air tight well-closed containers , as agreed to between the purchaser and the supplier, permitting a minimum of air space.

The material shall be well-protected from light and stored in a cool place.

5.2 Marking

The material shall be marked with the following information:

a) Name of the material,
b) Each container shall be clearly marked with the origin of the material,
c) Indication of source of manufacture,
d) Net mass of material, and
e) Batch number.

5.3 BIS Certification Marking

Each containers may also be marked with the Standard Mark.

5.3.1 The use of the Standard Mark is governed by the provisions of the *Bureau of Indian Standards Act*, 1986 and the Rules and Regulations made thereunder. The details of conditions under which the licence for the use of Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

6 SAMPLING

Representative samples of the material shall be drawn as prescribed in IS 326 (Part 1):1984.

7 TESTS

7.1 Tests shall be conducted as prescribed in col 4 of Table 1.

7.2 Quality of Reagents

Unless otherwise specified, pure chemicals and distilled water (*see* IS 1070 : 1992) shall be employed in the tests.

ANNEX A

(*Foreword*)

GAS CHROMATOGRAPHIC ANALYSIS OF OIL OF HIMALAYAN CEDARWOOD

A-1 GENERAL

The chromatographic conditions given here are for guidance only.

A-1.1 Outline of the Method

A sample of the material is dissolved in a suitable solvent (for example, hexane, cyclohexane and petroleum ether) and is injected into the gas chromatograph where it is carried by the carrier gas from one end of the column to the other. During its movement, the constituents of the sample undergo distribution at different rates and ultimately get separated from one another. The separated constituents emerge from the end of the column one after another and are detected by suitable means whose response is related to the amount of a specific component leaving the column.

A-2 APPARATUS

A-2.1 Any suitable gas chromatograph and column capable of being operated under conditions suitable for resolving the individual constituents into distinct peaks may be used. The typical chromatogram for oil of Himalayan cedarwood with the following chromatographic conditions is shown in Fig. 1.

Sample	*Oil of Himalayan Cedarwood*
Column	
Material	Stainless steel
Length	12 ft
Orifice	0.32 cm(1/8 inch)
Stationary phase and solid support	10 percent by mass on Chromosorb WHP 100-120 mesh
Carrier Gas	Nitrogen
Conditions:	
Column temperature	150°C
Injection port temperature	210°C
Detector	
Type	F.I.D
Temperature	230°C

A-3 CALCULATION

A-3.1 Area Measurement (*see* Note 1)

Since normal peaks approximate a triangle, the area is measured by multiplying the peak height with the width of half height. The normal peak base is not taken since large deviations may be observed due to tailing or adsorption. This technique is rapid, simple and fairly accurate when peaks are symmetrical and of reasonable width.

A-3.2 Area Normalization (*see* Note 2)

By normalizing, it is meant, calculating the percentage composition by measuring the area of each peak and dividing the individual areas by total area.

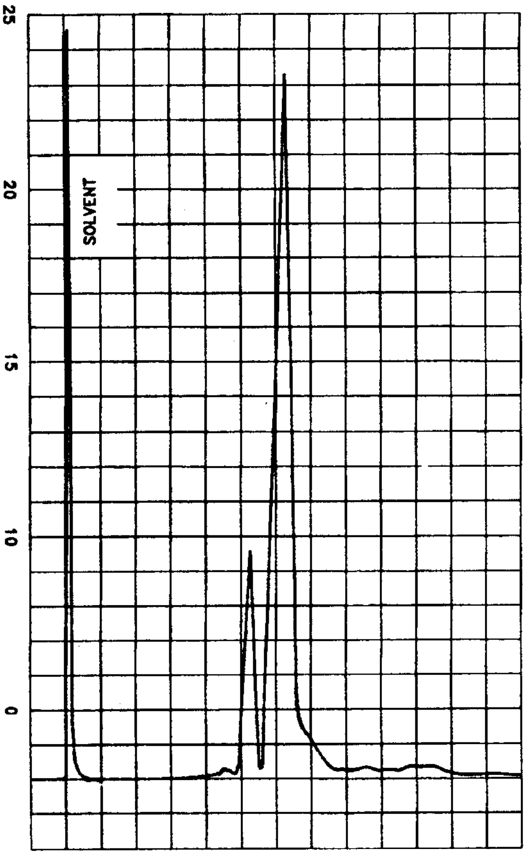

FIG. 1 A TYPICAL CHROMATOGRAM OF OIL OF HIMALAYAN CEDARWOOD

For example:

$$\text{Percentage of } A = \frac{\text{Area of } A}{\text{Total area}} \times 100$$

NOTES

1 Other methods of area measurements, namely, triangulation, disc integrator and electronic digital integrator if fixed with GLC machine, would be of great advantage.

2 Internal standardization may be used if pure appropriate internal standard is available. This method is known as relative or indirect calibration.

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Amendments Issued Since Publication

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